

Patent claims

1. Transmitting unit comprising
- 5 a first unit (CM_SCHDR) receiving scheduled first data (DATA2, DATA3) for transmission on at least a first channel,
- a power control unit (PWR_CTRL) for the first channel responsive to a respective closed loop power regulation signal (TCP_CMD), under which at least the transmit power rate of change is limited to a predetermined value per time unit,
- 10 a packet data scheduler (HS_SCHDR) scheduling second data packets (DATA1) for transmission on at least a second channel at an actual power level ($P_H(t)$), and
- 15 a power amplifier (POWER AMP) amplifying and outputting the scheduled first and second data, whereby the outputted first and second channels are subject to interference from one another, whereby
- 20 the transmit unit (BSS) for each scheduling interval of high speed packet data operating the packet data scheduler such as to comprise the following steps
- receiving the first scheduled data (DATA2, DATA3),
 - 25 - determining a possible power ($P_{POS}(t)$) at a given instance as the maximum value of either the actual power ($P_{HS}(t-1)$) at a previous instance or the possible power determined at a previous instance ($P_{POS}(t-1)$), decreasing the maximum value by a predetermined value (d),
 - 30 - determining a permitted power ($P_{PERM}(t)$) at a given instance as the maximum value of either the actual power of a previous instance ($P_{HS}(t-1)$) added with the predetermined value (d) or the determined possible power ($P_{POS}(t)$).

2. Transmission unit according to claim 1, wherein the transmit unit (BSS) for each scheduling interval of high speed packet data operates the high speed packet data scheduler such as to comprise the following steps
- 5 - depending on the available second data (DATA1) to be transmitted, scheduling the second data (DATA1) at a power level lower or equal to at least the permitted power ($P_{\text{PERM}}(t)$).
- 10 3. Transmission unit according to claim 1, wherein the transmit unit (BSS) for each scheduling interval of high speed packet data operates the high speed packet data scheduler such as to comprise the following steps
- determining a remaining power ($P_{\text{AVBL}}(t)$) as the total power budget remain-
15 ing for high speed packet data transmission after scheduling of common and dedicated channels,
- determining an available power ($P_{\text{AVBL}}(t)$) as the minimum value of either the permitted power or the remaining power ($P_{\text{REM}}(t)$),
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- determining a remaining power ($P_{\text{AVBL}}(t)$) as the total power budget remain-
ing for high-speed packet data transmission after scheduling of common and
dedicated channels.
- 25 4. Transmission unit according to claim 3, wherein the transmit unit (BSS) for each scheduling interval of high speed packet data operates the high speed packet data scheduler such as to comprise the following steps
- 30 - depending on the available second data (DATA1) to be transmitted, scheduling the second data (DATA1) at a power level lower or equal to at least the available power ($P_{\text{AVBL}}(t)$).
- 35 5. Transmitting unit according to claim 1 – 5, wherein the first and second channels are coded using code division multiplex access (CDMA) coding.

6. Transmitting unit according to claim 5, wherein the second data packets (DATA1) are high-speed data rate packets (HSPDA).

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7. Method of scheduling and transmitting data packets to user entities wherein channels are subject to interference from one another, comprising the steps of

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- receiving first scheduled data (DATA2, DATA3) pertaining to at least a dedicated channel,

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- determining a possible power ($P_{POS}(t)$) at a given instance as the maximum value of either the actual power ($P_{HS}(t-1)$) at a previous instance or the possible power determined at a previous instance ($P_{POS}(t-1)$), decreasing the maximum value by a predetermined value (d),

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- determining a permitted power ($P_{PERM}(t)$) at a given instance as the maximum value of either the actual power of a previous instance ($P_{HS}(t-1)$) added with the predetermined value (d) or the determined possible power ($P_{POS}(t)$),

- scheduling and transmitting packet data on at least a second channel, whereby the actual power ($P_H(t)$) is held within at least the permitted power, $P_{PERM}(t)$.